REMARKS

Reconsideration of the present application is respectfully requested.

The present invention relates to a method and device for fitting a tire on a rim. It has heretofore been known that tires can exhibit circumferential non-uniformities; these are imperfections resulting, for example, from irregularities in thickness of the strips of rubber which make up the tire or, for example, protrusions in the areas of welding of semi-finished products which make up the tire or from variations in rigidity around the wheel, due in particular to welding and non-homogeneity of material. These non-uniformities, which may be of different types, result in various types of disturbance to the behavior of the fitted assemblies of the tire and wheel, and can result for example in variations in radial load. Methods are known for revealing such non-uniformities, but room for improvement exists in the methods for correcting the non-uniformities.

The present invention involves a method and apparatus for appreciably moderating the effects of the variation in radial load of the tire on the fitted assembly.

According to the presently claimed invention, a predetermined area of a tire bead, which areas corresponds to the maximum of the harmonic H1 of variation in radial load of the tire, is held against passing over a rim's hump, at least during a first phase of tire inflation, while the rest of the bead passes over the hump. In this way, the area of the bead which is last to pass over the hump can be determined.

The present inventors have shown that, during the fitting of a tire on the rim of a wheel, an additional component appears in the constitution of the variations in radial load of the fitted assembly due to the fitting itself. It has in fact been possible to show that a non-axisymmetric seating of the bead on the wheel circumference

may result as the bead passes the humps during inflation. It has become clear that, although the problem occurs at only a small sector corresponding to the last area of the bead passing over the hump during inflation, it causes a disturbance which is distributed in harmonic H1 on the wheel circumference. This variation in radial load due to the fitting of the tire on the wheel is therefore added vectorially to the harmonic HI of the variation in radial load of the tire. They have also shown that the last area of the bead passing over the hump results in the minimum radial load component due to fitting.

Accordingly, the presently claimed invention improves the uniformity of the fitted assembly around the wheel circumference by ensuring that the last area to pass over the hump coincides with the maximum of the harmonic H1 of variation I radial load of the tire.

New claim 15, which incorporates subject matter of original claims 1, 2 and 3, recites the inventive method.

Original claims 1-12 were rejected under 35 U.S.C. §102, as being anticipated by Rousseau (U.S. Patent No. 5,060,510) which discloses a method of correcting the variations of radial force between a tire and the ground including measuring the variation in radial force of the tire/rim assembly and correcting by means of a circular mounting wedge placed between a bead and the rim. There is no disclosure or suggestion that, during inflation, an area of the bead, coinciding with the position of a maximum of the harmonic H1 of a radial load variation, should be held against passage over its respective hump while the rest of the bead is allowed to pass over the hump.

Accordingly, it is submitted that claim 15 and dependent claim 16-20 distinguish patentably over Rousseau.

Independent claim 20 recites an apparatus for performing the method defined by claim 15. In particular, it comprises a tool configured for holding only a portion of a bead from passing over a respective hump. Such a tool distinguishes patentably over the circular wedge disclosed by Rousseau.

In light of the foregoing, it is submitted that the application is in condition for allowance.

Respectfully submitted,

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